DESCRIPTION

IMAGE DISPLAY METHOD AND PORTABLE TERMINAL

FOR DISPLAYING SELECTED IMAGE

Technical Field

This invention relates to display of description data of a web page specified with a URL (Uniform Resource Locator) and in particular to an image selection and display method for selecting and displaying any desired image as required and a portable terminal for displaying an image using the method.

Background Art

In recent years, the following service has been known: A WWW (World Wide Web) browser function is installed in a portable telephone for viewing various pieces of information described in a format of HTML (Hyper Text Markup Language), etc., existing in WWW servers. The data handled in WWW includes not only text, but also inline images linked in web pages and displayed inline by the WWW browser. Each web page made up of such data assumes that it is displayed by a standard WWW browser installed in a PC (personal computer), and contains a large amount of text and image data.

On the other hand, a simplified browser whose function is limited is installed in a portable telephone and memory and

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physical screen limits are involved in the portable telephone and therefore it is difficult to provide a display form similar to that using a PC. Thus, to display a web page on a portable telephone, an image is not displayed or if an image is displayed,

5 the display area is reduced for displaying the image (scaled-down display) or a part of the image is displayed (partial display), so that the viewability of text information displayed on the screen of the portable telephone is not impaired.

10 However, even with portable telephones, the demand for aggressively displaying a web page image is strong; in this case, how the image can be displayed efficiently without sacrificing text information, etc., on the limited screen is essential. Further, with a terminal capable of displaying a color image,

15 importance of images is high and it is desired that image information should be effectively displayed and utilized like text information.

Disclosure of Invention

20 It is therefore an object of the invention to provide an image display method for enabling the user to display any desired image as required. It is also an object of the invention to provide a portable terminal capable of displaying an image effectively even if the portable terminal is a portable terminal

25 such as a portable telephone having a physically limited screen

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size.

According to first aspect of the invention, there is provided an image display method for displaying description data having text information and image information described in a predetermined description format, the image display method comprising the steps of extracting attribute values indicating attributes for specifying the image information from the description data, listing the extracted attribute values, selecting at least one attribute value from among the listed attribute values, and reading and displaying the image information specified by the selected attribute value.

The attribute values indicating the attributes for specifying the image data forming the description data are listed, any desired attribute value is selected from among the listed attribute values, and the image corresponding to the selected attribute value is displayed, so that the user can selectively display any desired image as required.

In the image display method, preferably, the step of listing the extracted attribute values lists alternative character strings to images inline displayed in the description data.

The alternative character strings to the images (indicating the image contents) are listed, whereby the image contents can be recognized by referencing the listing.

In the image display method, preferably, the step of

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listing the extracted attribute values lists file names indicating the locations of images inline displayed in the description data.

The file names indicating the locations of the images are listed, whereby when listing the alternative character strings is not adequate or is impossible, the locations of the images can also be recognized.

The image display method, preferably, further comprises the steps of selecting a format of images inline displayed in the description data based on the attribute values and listing images in the selected file format.

The attribute values can be referenced for determining the image format, so that any desired image can be selected and displayed from among still images, moving images, etc.

According to second aspect of the invention, a portable terminal comprising a display section for displaying description data having text information and image information described in a predetermined description format, and image selection and display means for extracting attribute values indicating attributes for specifying the image information from the description data, listing the extracted attribute values, selecting at least one attribute value from among the listed attribute values, reading the image information specified by the selected attribute value, and displaying the image information on the display section.

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The attribute values indicating the attributes for specifying the image data forming the description data are listed, any desired attribute value is selected from among the listed attribute values, and the image corresponding to the

5   selected attribute value is displayed on the display section of the portable terminal, whereby it is made possible to separate text and an image for display. Thus, even with a terminal having a limited screen size, an image can be displayed effectively without impairing text information.

10   In the portable terminal, preferably, the attribute values are alternative character strings to images inline displayed in the description data.

The alternative character strings to the images (indicating the image contents) are listed, whereby the image

15   contents can be recognized by referencing the listing and any desired image can be selected and displayed on the display section of the portable terminal.

In the portable terminal, preferably, the attribute values are file names indicating the locations of images inline

20   displayed in the description data.

The file names indicating the locations of the images are listed, whereby when listing the alternative character strings is not adequate or is impossible, the locations of the images can also be recognized and any desired image can be selected

25   and displayed on the display section of the portable terminal.

In the portable terminal, preferably, further a format of images inline displayed in the description data is selected based on the attribute values, images in the selected file format are listed, and an image in any desired format is

5   displayed on the display section.

The attribute values can be referenced for determining the image format, so that any desired image can be selected from among still images, moving images, etc., and can be displayed on the display section of the portable terminal.

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Brief Description of Drawings

In the accompanying drawings:

FIG. 1 is a flowchart of an image selection and display method according to an embodiment of the invention;

15   FIG. 2 is a drawing to show description files describing web pages;

FIG. 3 is a drawing to show an image selection list for selecting an image out of description data; and

FIG. 4 is a drawing to show how the image selected out

20   of the image selection list is displayed on a display section of a portable terminal.

Best Mode for Carrying Out the Invention

Image data related to image display of the invention will

25   be discussed, followed by a description of an embodiment of the

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invention. A WWW browser for displaying a web page accesses

the WWW server specified with a URL through the Internet or an

intranet in a WWW service client, reads the description data

of a web page described in a predetermined format such as HTML

5   in page units, and processes the data for display, then displays

the contents of the web page on a screen.

To display an image on a web page in HTML, the image

attribute is described in the place where the image is to be

linked in the description data of the web page in the following

10   format using an inline image tag IMG:

<IMG SRC="URL of image file" ALT="alternative character

string">

In the image description with the image tag IMG, the

description with SRC is called SRC attribute, the description

15   with ALT is called ALT attribute, and "URL of image file"

and "alternative character string" are called attribute values.

The SRC attribute specifies the URL (location) of the image file

in which the image data to be displayed is stored. The URL of

the image file is made up of a file name indicating the location

20   of the image file and an extension indicating the format of the

file. The ALT attribute enables alternative display of an image

to show the image contents in a WWW browser incapable of

displaying an image or a WWW browser wherein image display is

limited. The alternative character string is represented so

25   that the image contents can be identified without recognizing

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the image.

In the current HTML, the IMG element for specifying an inline image comprises attributes representing the image display position, etc., as well as the SRC attribute and the

5   ALT attribute; further various attributes can also be supported as the HTML function is extended. Therefore, it is to be understood by those skilled in the art that as attributes are added, the attributes are listed and an image is selected.

Referring now to the accompanying drawings, there is
10   shown a preferred embodiment of the invention.

FIG. 1 is a flowchart of an image display method to show an embodiment of the invention. Steps 101 to 113 shown in FIG. 1 indicate an image selection and display method executed when an image selection and display menu function (image selection
15   and display means) 100 installed in a portable machine is started.

In FIG. 1, at step 101, the description data of a web page read by a WWW browser is scanned and at step 102, whether or not the description data is inline image description is
20   determined. The description data is determined inline image description by detecting an inline image tag IMG in HTML description data. If the description data is determined inline image description, attribute description forming the inline image tag, namely, an SRC attribute (SRC="URL of image file")
25   and an ALT attribute (ALT="alternative character string") are

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extracted and steps 103 to 109 are executed.

At step 103, if the same image is described repeatedly in the description data of the web page, "URL of image file" is compared and processing is skipped for already extracted

5   image description, whereby duplicate extraction of listed attributes values can be avoided.

At step 104, if the attribute value of the ALT attribute is set to a specific value, such as an asterisk (*), for an image not necessarily important, the "alternative character string"

10 is compared with a specific value, whereby the image description can be placed out of the listing. For example, to describe a hyperlink using an anchor tag, an image may be used as simple display.

At step 105, if the file format of the image file name

15 described in the SRC attribute indicates a specific file format, it is determined that the image description is to be placed in the listing; if the file format indicates any other file format, it is determined that the image description is to be placed out of the listing. In the image formats of images described on

20 web pages, the images that can be displayed on the current portable telephones are limited to still images only in a file format gif because of terminal hardware and software restrictions. The gif format is specified as the specific file format, whereby only images fitted to image display can be

25 selected.

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If it is determined through the steps that the image description is to be placed in the listing, control goes to step S106 and the SRC attribute and the ALT attribute of the image description are extracted and are written into an extraction

5   list. The format and description of the extraction list may be arbitrary in response to the whole processing; the extraction list is used for duplicate detection of the attribute values at step 103 and processing for reading the image selected at step 112.

10   At step 107, whether or not the extracted image description contains the ALT attribute, namely, description of "alternative character string" is determined. If it contains description of "alternative character string," control goes to step 108 and the alternative character string is added to

15   listing on a screen (see FIG. 2). If the extracted image description does not contain description of "alternative character string," control goes to step 109 and the "image file name" described in the SRC attribute is added to listing on a screen (see FIG. 2).

20   When it is determined at step 110 that web page scanning terminates, all attribute values of the image descriptions extracted are listed on the screen (see FIG. 3). At step 111, the user of the portable terminal such as a portable telephone selects an arbitrary item from among the items indicating the

25   attribute values of the images listed, and selects the image

to be displayed. When one item is selected from among the listed items, control goes to step 112 and the information written into the extraction list is referenced for the image described by the attribute values of the selected item and the image data

5   is read. At step 113, an image is drawn using the image data and is displayed on the full screen. FIG. 4 shows a case wherein "CHARACTER STRING 3" is selected out of the image selection list shown in FIG. 3 and the image of "CHARACTER STRING 3" is displayed on the screen.

10   When a web page is read, if text data and image data are read in batch and are stored in memory installed in the portable telephone, the memory is referenced and image is input. On the other hand, if image data of a web page is skipped and only text data is stored in memory installed in the portable telephone,

15   the WWW server is referenced and image is input. One image corresponding to one item written into the extraction list is displayed on a full screen and in addition, two or more items may be selected out of the extraction list and two or more images corresponding to the two or more items may be displayed in split

20   areas of the screen.

In the processing of the embodiment described above, the image files whose file format is gif are selected. However, as the performance of a display screen of a portable terminal is enhanced continuously and the internal memory capacity is

25   extended constantly, there is a possibility that it will be made

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possible to also display a still image in any other file format. A technique of displaying images in the gif format one after another, thereby showing motion like an animation is available at present; there is a possibility that it will be made possible to also display a moving image in any other format described on a web page in the near term.

In such a case, a function of specifying an image file format may be provided for selecting the type of image to be displayed. For example, the following processing is possible: A menu function is provided with a file specifying menu and is set so as to extract moving image description in a specific format from description files of web pages using the file specifying menu and the attribute values are listed on a screen.

In the embodiment described above, the portable telephone is taken as an example of the portable terminal, but the invention can also be applied to an information terminal with a small image display area. Even to a terminal with an unlimited screen size, to separate text information and image information for display as required, for example, to display text information taking precedence over image information, the invention can also be applied.

Industrial Applicability

As described above, according to the image display method, the attribute values indicating the attributes for specifying

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the image data forming the description data are listed, any

desired attribute value is selected from among the listed

attribute values, and the image corresponding to the selected

attribute value is displayed, so that the user can selectively

5   display any desired image as required.

According to the portable terminal, the attribute values

indicating the attributes for specifying the image data forming

the description data are listed, any desired attribute value

is selected from among the listed attribute values, and the

10   image corresponding to the selected attribute value is

displayed on the display section of the portable terminal,

whereby it is made possible to separate text and an image for

display. Thus, even with a terminal having a limited screen

size, an image can be displayed effectively without impairing

15   text information.